

A*udit*

R*eport*



PREPARATION OF THE WIDE-AREA MUNITION
FOR THE YEAR 2000

Report No. 99-143

April 30, 1999

Office of the Inspector General
Department of Defense

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Acronyms

FAR	Federal Acquisition Regulation
WAM	Wide-Area Munition
WAM-PIP	Wide-Area Munition-Product Improvement Program
Y2K	Year 2000



INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
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ARLINGTON, VIRGINIA 22202

April 30, 1999

MEMORANDUM FOR AUDITOR GENERAL, DEPARTMENT OF THE ARMY

SUBJECT: Audit Report on Preparation of the Wide-Area Munition for the Year 2000
(Report No. 99-143)

We are providing this report for information and use. This report is one of a series being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts to address the year 2000 computing challenge.

This report contains no adverse findings or recommendations and written comments are not required. Therefore, we are publishing this report in final form.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Mr. Charles M. Santoni at (703) 604-9051 (DSN 664-9051) <CSantoni@dodig.osd.mil> or Mr. Sean Mitchell at (703) 604-9034 (DSN 664-9034) <SMitchell@dodig.osd.mil>. See Appendix B for the report distribution. The audit team members are listed inside the back cover.

A handwritten signature in black ink, reading "Robert J. Lieberman", is positioned above the printed name.

Robert J. Lieberman
Assistant Inspector General
for Auditing

Office of the Inspector General, DoD

Report No. 99-143
(Project No. 8AL-0041.02)

April 30, 1999

Preparation of the Wide-Area Munition for the Year 2000

Executive Summary

Introduction. This report is one in a series being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts to address the year 2000 computing challenge. This report addresses the year 2000 issues pertaining to the Wide-Area Munition, an Army mission-critical system.

Objective. Our overall audit objective was to determine whether planning and management are adequate to ensure that the Wide-Area Munition will operate effectively in the year 2000. We limited our review to the Wide-Area Munition components managed by the Wide-Area Munition Program Office.

Results. The Wide-Area Munition Program Office was actively planning and managing the Wide-Area Munition Year 2000 issues as well as preparing the documentation required by the DoD Year 2000 Management Plan and the Army Year 2000 Compliance Checklist.

Management Comments. We provided a draft on March 26, 1999. Because this report contains no adverse findings or recommendations, written comments were not required, and none were received. Therefore, we are publishing this report in final form.

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Background

Because of the potential failure of computers to run or function throughout the Government, the President issued an Executive Order, "Year 2000 Conversion," February 4, 1998, making it policy that Federal agencies ensure that no critical Federal program experiences disruption because of the year 2000 (Y2K) problem and that the head of each agency ensure that efforts to address the Y2K problem receive the highest priority attention in the agency.

DoD Y2K Management Plan. The "Year 2000 DoD Management Plan" makes the DoD Components responsible for implementing the five-phase Y2K management process. The DoD Management Plan includes a description of the five-phase Y2K management process. The target completion date for implementation of mission-critical systems was December 31, 1998.

Y2K Implications for DoD Weapon Systems. DoD weapon systems are becoming increasingly advanced through the extensive use of computers and software. The development and acquisition of software, information technology systems, and software embedded in weapon systems that accommodate the century change are essential to future mission effectiveness. The weapon systems include smart munitions, missiles, armored vehicles, ships, aircraft, communication, and navigation.

Army Y2K Compliance Checklist. The Army developed its Y2K Compliance Checklist to aid system and device program, product, and project managers in ensuring that their systems and devices are tested, documented, and determined to be Y2K compliant.

Objective

The overall audit objective was to determine whether planning and management are adequate to ensure that the Wide-Area Munition will operate effectively in the year 2000. See Appendix A for a discussion of the audit scope and methodology and prior audit coverage.

Status of the Wide-Area Munition Year 2000 Compliance

The Wide-Area Munition (WAM) Program Office was actively planning and managing Y2K issues and generally preparing documentation as required by the DoD Management Plan and the Army Y2K Compliance Checklist. Because the WAM Program Office and contractor personnel determined that the algorithms in the basic WAM contained no date references, the WAM basic contract was not subject to the provisions of Federal Acquisition Regulation (FAR) 39.106, "Year 2000 Compliance." The WAM Product Improvement Program (PIP), a modification of a basic WAM that is scheduled for delivery after the year 2000, will contain date-processing functions and will be contractually required to be Y2K compliant.

System Description

The WAM is a mission critical, smart, autonomous, top-attack, anti-tank, anti-vehicle munition, which is designed to defeat armored combat vehicles from a standoff distance. The WAM uses acoustics and seismic sensors in its ground platform to detect, track, and classify potential targets. The WAM launches an infrared detecting submunition or "sublet," which then fires an explosively formed penetrator to defeat the target. The WAM is designed to be carried and emplaced by one person; to have a 360-degree standoff lethal radius at 100 meters; and to be fully autonomous from final arming to target engagement. The Army procured 400 units of the basic WAM and initiated a WAM-PIP to allow the WAM to interface with other systems and to increase its capabilities. The WAM prime contractor for the basic WAM and the WAM-PIP is Textron Systems Corporation.

Year 2000 Program Guidance

The FAR Requirement for Y2K Compliance. The FAR contains clauses that address Y2K compliance issues in Part 39, "Acquisition of Information Technology." FAR 39.002 states that information technology is Y2K compliant when it is capable of accurately processing date and time data in the 20th and 21st centuries, as well as in leap years. FAR 39.106, "Year 2000 Compliance," states that agencies acquiring information technology that require date and time processing after December 31, 1999, must ensure that contracts and solicitations require the information technology to be Y2K compliant or take measures to ensure that noncompliant information technology is upgraded to be Y2K compliant.

DoD Guidance. The DoD Management Plan requires DoD to use Y2K compliance language, as prescribed in the FAR, in all new contracts and in modifications to existing contracts, as appropriate. On August 7, 1998, the Secretary of Defense directed the Services and Defense agencies to report on each major acquisition system under their purview. Each report was to address areas of Y2K compliance or noncompliance for each system. The Secretary of Defense also directed that funds not be obligated for any contract for information technology or national security systems that process date-related information and that do not contain the Y2K requirements specified in FAR 39.106.

Y2K Program Management

The WAM Program Office was actively planning and managing Y2K issues and complied with requirements of the DoD Management Plan. The WAM Program Executive Officer appropriately certified both the basic WAM and the WAM-PIP as Y2K compliant on May 3, 1998. Because the WAM-PIP will contain date-processing functions, program officials included Y2K compliance provisions in the follow-on WAM-PIP contract that has deliveries scheduled after the year 2000. However, because the basic WAM does not contain date-processing functions, Program Office officials did not modify the basic WAM production contract.

Army Y2K Compliance Checklist. The WAM Program Office used the Army Y2K Compliance Checklist to ensure that the WAM was properly documented and to determine that it was Y2K compliant. The WAM basic software is embedded in EE Proms and uses a C30 microprocessor. An integrated product team consisting of contractor personnel and Army Armament Research, Development and Engineering Center engineers determined that the algorithms contained no date references. According to the engineers, the software did not run on different operating platforms or reference external databases, and the software code was not date-sensitive. The Army could not conduct independent testing because the WAM contains no date references.

The WAM-PIP software will contain date-processing functions. The WAM-PIP is scheduled for delivery after the year 2000 and is contractually required to be Y2K compliant.

Contract Language. The basic WAM production contract, DAAE30-C-96-0015, was signed on June 16, 1996, before the April 1997 requirement to use Y2K compliance language in all new contracts and modifications. The WAM Program Office did not modify the basic production contract to incorporate Y2K compliance provisions for the following two reasons. First, an integrated product team determined that the algorithms in the basic WAM contained no date references. Second, the basic WAM production contract is for only 400 units, with the final lot of deliveries scheduled for November 30, 1999.

The WAM-PIP contract, DAAE30-96-C-0019, was signed June 19, 1996, before the April 1997 requirement to use Y2K compliance language; however, such language was incorporated. The WAM-PIP delivery is scheduled to begin in 2001 and is contractually required to be Y2K compliant.

Appendix A. Audit Process

This report is one in a series being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts to address the Y2K computing challenge. For a listing of audit projects addressing this issue, see the Y2K webpage on IGnet at <<http://www.ignet.gov>>.

Scope

We determined whether the WAM production contract contained a requirement for Y2K compliance. In evaluating the WAM, we interviewed officials from the Office of the Program Manager, Mines, Countermine, and Demolitions. We reviewed documents including the production contract and the Army Y2K Compliance Checklist. We determined whether planning and management of the WAM program was adequate to ensure that the WAM would operate effectively in the year 2000.

DoD-Wide Corporate Level Government Performance and Results Act Goals. In response to the Government Performance and Results Act, the Department of Defense has established 6 DoD-wide corporate level performance objectives and 14 goals for meeting these objectives. This report pertains to achievement of the following objective and goal:

- **Objective:** Prepare now for an uncertain future.
- **Goal:** Pursue a focused modernization effort that maintains U.S. qualitative superiority in key war-fighting capabilities. (DoD-3)

DoD Functional Area Reform Goals. Most major DoD functional areas have also established performance improvement reform objectives and goals. This report pertains to achievement of the following functional area objectives and goals:

Information Technology Management Functional Area.

- **Objective:** Become a mission partner.
- **Goal:** Serve mission information users as customers. (ITM-1.2)
- **Objective:** Provide services that satisfy customer information needs.
- **Goal:** Modernize and integrate Defense information infrastructure. (ITM-2.2)
- **Objective:** Provide services that satisfy customer information needs.
- **Goal:** Upgrade technology base. (ITM-2.3)

General Accounting Office High-Risk Area. The General Accounting Office has identified several high-risk areas in DoD. This report provides coverage of the Information Management and Technology high-risk area.

Methodology

We interviewed officers from the office of the Project Manager, Armament Research, Development and Engineering Center. We obtained and reviewed the WAM-PIP contract modification, the Army Year 2000 Compliance Checklist, the WAM Y2K certification, and other supporting documentation to determine whether the WAM program office was actively planning and managing Y2K issues to ensure that the WAM would operate effectively in the year 2000.

Use of Computer-Processed Data. We did not use computer-processed data to perform this audit.

Audit Period and Standards. We performed this economy and efficiency audit from January 1999 through March 1999, in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD.

Contacts During the Audit. We visited or contacted individuals and organizations within the Department of the Army. Further details are available upon request.

Management Control Program Review

The audit scope was limited in that we did not review the management control program because DoD recognized the Y2K computing problem as a material management control weakness area in the FY 1997 and FY 1998 Annual Statements of Assurance.

Summary of Prior Coverage

The General Accounting Office and the Inspector General, DoD, have conducted multiple reviews related to Y2K issues. No reports specifically concerning the WAM have been issued. General Accounting Office reports can be accessed over the Internet at <http://www.gao.gov>. Inspector General, DoD, reports can be accessed over the Internet at <http://www.dodig.osd.mil>.

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House Committee on Government Reform
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Committee on Government Reform
House Subcommittee on National Security, Veterans Affairs, and International
Relations, Committee on Government Reform
House Subcommittee on Technology, Committee on Science

Audit Team Members

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